

ENGR 1201 – Team Project #1 — Guidelines  
Sustainable New Home Design

Goal: Prepare a proposal for modifying an existing new home design to improve its sustainability by reducing its resource consumption and improving energy efficiency

General Project Requirements:

- Obtain an existing San Antonio builder's design, including floor plans and specifications, for a typical, middle income 3 or 4 bedroom new home
- **Select one or two (maximum) ways** to change the home's design to increase its sustainability and/or reduce resource consumption, yet still be affordable for middle income families
- Examples of sustainability measures that can be incorporated into the design include:
  - more sustainable building materials
  - more efficient HVAC or water heating systems
  - more efficient appliances
  - alternative energy systems (solar, wind, biofuel, or geothermal)
  - xeriscape landscaping
  - rainwater harvesting
- Prepare a written report and oral PowerPoint presentation detailing your proposed design

Written and Oral Report Requirements: (Note - much more detail must be provided in the written report. The oral presentation will include the most important aspects of the written report/proposal.)

- Description of the existing new home design to include:
  - Name of builder, floor plan, dimensions, lot size, primary building materials, total cost
  - Specs for HVAC system, water heater, and major appliances
  - Estimated annual utilities use (electricity, gas, water) for typical family of four
  - Estimated annual cost of utilities
  - Limitations of current design as regards to sustainability/efficiency
- Description of each change/improvement you propose for the home to include:
  - Description of the improvement and list of equipment and materials required
  - Description of how the improvement would be implemented and how it would operate
  - Drawings and/or diagrams of the improvement as incorporated into the home design
  - Benefits and limitations of each design change/improvement
  - Additional cost to implement improvement and annual recurring costs (if any)
  - Cost analysis: dollar savings per year based on utilities costs; payback period in years

Administrative Requirements:

- Oral presentation:
  - 6 - 12 mins (each person does equal portion) (grade reduced if time limit busted)
  - Must use a minimum of 6 PowerPoint® slides during the presentation
    - Include Title, Overview, and Conclusion slides
- Written report:
  - 8 to 12 pages typed (dbl spaced) including title page, references, and diagrams
  - Include a title page with your team name, team logo, title, report date, and typed name of each team member – also, each member **must sign** by his typed name

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- Include a table of contents page as well as introduction & conclusion paragraphs
- Use chapter designators/topic titles (Ex: Intro., Existing Design, New Design, etc.)
- **Indicate which person was responsible for each paragraph by adding their name in parentheses at the beginning of each paragraph of the report**
- Number the pages and include a list of references on the last page
  - **Use the guidelines sheet as a check sheet ( ✓ ) and staple it at the end**